

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA

v.

ANTHONY TROY WRIGHT,

Defendant.

CRIMINAL ACTION  
NO. 19-230

**OPINION**

**Slomsky, J.**

**August 31, 2022**

**I. INTRODUCTION**

This case presents important questions about the admissibility of fingerprint evidence. In this case, Defendant Anthony Troy Wright is charged by a grand jury with two counts of robbery in violation of 18 U.S.C. § 1951(a), and two counts of using a firearm during and in relation to a crime of violence in violation of 18 U.S.C. § 924(c)(1). These charges arise from two separate gunpoint robberies allegedly committed by Defendant. The first robbery took place on March 28, 2018, at a Sunoco A-Plus Market (“Sunoco robbery”), and the second robbery took place on May 18, 2018, at a Walgreens Pharmacy (“Walgreen’s robbery”).

Before the Court are two Motions in Limine filed by Defendant: (1) a Motion in Limine to Exclude Fingerprint Evidence (Doc. No. 52); and (2) a Motion in Limine to Exclude Expert Testimony Regarding Latent Fingerprint Identification (Doc. No. 61). In the Motions, Defendant seeks to exclude under Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993) and Federal Rule of Evidence 702 expert testimony by Detective David McDonald on fingerprint evidence. The proposed expert testimony would explain how Detective McDonald matched the latent fingerprint evidence from the Sunoco robbery to Defendant’s known fingerprint using ACE-V, a method for the examination and comparison of latent and known fingerprints. For

reasons that follow, the fingerprint evidence and proposed expert testimony of Detective McDonald are admissible under Federal Rule of Evidence 702 and the Daubert standard. Accordingly, Defendant's Motions in Limine (Doc. Nos. 52, 61) will be denied.

## **II. BACKGROUND**

### **A. Factual Background**

On March 28, 2018, an armed man robbed the Sunoco A-Plus Market ("Sunoco") at 8203 West Chester Pike, Upper Darby, Pennsylvania. (Doc. No. 53 at 2.) The man was wearing a black hooded sweatshirt, black pants, dark boots, and a skull mask. (Id.) The following events were captured on a security camera at Sunoco. (Id.) First, the man entered the store and threatened an employee with a handgun and demanded money. (Id.) The cashier complied and opened the register. (Doc. No. 52-2 at 3.) Next, the man "rifled through the cash register," "lifted out the cash drawer with his left hand, took cash from it, and threw the drawer to the ground," all without wearing gloves. (See Doc. No. 62 at 2.) Responding to the robbery, Upper Darby Police Detective Christopher Karr ("Karr") recovered latent fingerprint evidence from the cash drawer and sent it to the Delaware County Criminal Investigations Division ("CID") for analysis. (Id.; see also Doc. No. 53 at 2.)

The Walgreen's robbery occurred two months later. On May 18, 2018, an armed man wearing all black clothing, dark boots, and a black skull mask robbed a Walgreen's Pharmacy located at 300 North 63rd Street, Philadelphia, PA. (Doc. No. 52-2 at 2.) The Walgreen's robbery also was captured on a security camera. The man approached the cashier with a handgun and demanded money. (Id.) When the cashier was unable to open the register, the store manager came over and opened it while the man held him at gunpoint. (Id.) However, after seeing the amount in the register, the man "asked the manager where the rest of the money was." (Id.) The manager then opened a mini-safe and turned over its contents over to the man, who took \$675 in total. (Id.)

While investigating the Walgreen's robbery, Philadelphia Police Detective Jarell Babb ("Babb") recovered footage from several buildings which the man had passed to enter and leave the store. (*Id.*) Taken together, the footage from the other buildings showed the man parking a green Ford Mustang, walking to the Walgreen's before the robbery, and then "fleeing back" to the car after the robbery. (Doc. No. 62 at 3.)

After searching PennDOT records for green Ford Mustangs in the area, Detective Babb drove around to find the vehicle. (Doc. No. 62.) On June 8, 2018, Babb located the Ford Mustang in the lot of a local mechanic. (*Id.*) The mechanic explained that he had purchased the Mustang from a man named Anthony Wright on May 26, 2018, which was eight days after the Walgreen's robbery. (*Id.*) Further, the mechanic said that Wright used his driver's license during the sale. (*Id.*) When Babb showed him a photo of Anthony Wright, the mechanic confirmed that he was the man who sold him the car. (*See id.*) On June 9, 2018, Detective Babb searched the vehicle pursuant to a search warrant and recovered various items linked to Defendant, "including paystubs in Wright's name from an area restaurant and a priority mail envelope with Wright's address." (Doc. No. 62 at 4.) Based on the totality of the evidence, Philadelphia Police considered Defendant the primary suspect in the Walgreen's robbery. (*Id.*)

Because the police believed that a man of the same description had carried out the Sunoco and Walgreen's robberies,<sup>1</sup> Babb gave Wright's name to police in Upper Darby, where the Sunoco robbery occurred. Thereafter, the Upper Darby Police informed its fingerprint expert, Delaware

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<sup>1</sup> In his Investigation Report, Philadelphia Police Detective Jarell Babb noted that Defendant had three prior robbery convictions on his record. (Doc. No. 52-2 at 3.) In the two months between the Sunoco and Walgreen's robberies, an additional four robberies were committed across Delaware and Montgomery counties by a person with the same description and modus operandi as the two robberies at issue. (*Id.*) Thus, police in Philadelphia, Delaware, and Montgomery counties believed there was a single suspect responsible for this string of robberies. (*Id.*)

County CID Detective David McDonald (“McDonald”), that Wright was a suspect in the Sunoco robbery based on the matching descriptions of the men. (See id. at 4.) McDonald then obtained copies of Defendant’s known fingerprints in previous cases from the Automated Fingerprint Identification System (“AFIS”) and compared them to the latent prints recovered from the Sunoco A-Plus Market cash register. (Doc. No. 62 at 4.) Although two of the three latent fingerprints were inconclusive, McDonald was able to match one of the latent fingerprints to Defendant’s left middle finger. (Id.) On June 12, 2018, McDonald filed a report detailing his findings (the “Initial Report”). (Id.)

## **B. Procedural Background**

On April 23, 2019, Defendant was indicted on two counts of robbery in violation of 18 U.S.C. § 1951(a), and two counts of using a firearm during and in relation to a crime of violence in violation of 18 U.S.C. § 924(c)(1). (Doc. No. 8 at 1.) On June 24, 2019, Defendant was furnished with Detective McDonald’s Initial Report of the fingerprint analysis. (Doc. No. 52 at 4.) Believing there to be insufficient detail in the Initial Report, Defendant requested additional discovery from the Government. (See Doc. No. 61 at 4.) In July 2021, the Government provided Defendant with a summary of the procedure McDonald used to make the positive identification (“the Second Report”).<sup>2</sup> (Id.) In the Second Report, the Government noted that Detective McDonald used the “ACE-V method,” which is a four-step method that stands for Analysis, Comparison, Evaluation, and Verification.<sup>3</sup> (Id.) Finding the Second Report “wholly insufficient,”

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<sup>2</sup> The Second Report is a summary of an email conversation between Assistant United States Attorney Joseph A. Labar and Detective McDonald about the procedure McDonald used to make the positive identification. (See Doc. No. 61 at 4.)

<sup>3</sup> The four-step process known as the ACE-V method will be discussed in detail infra.

Defendant again requested a more thorough report on how Detective McDonald arrived at his opinion that the latent print matched Defendant's known print. (*Id.*)

**a. First Motion**

On August 3, 2021, Defendant filed his First Motion in Limine to Exclude Fingerprint Evidence (Doc. No. 52) (the "First Motion"). In the Motion, Defendant argues that the Initial and Second Reports fail to satisfy the discovery requirements of Federal Rules of Criminal Procedure 16(a)(1)(F)(i)-(iii) and 16(a)(1)(G).<sup>4</sup> On August 17, 2021, the Government filed a Response. (Doc. No. 53.) And on August 24, 2021, Defendant filed a Reply. (Doc. No. 54.) On September 9, 2021, the Court held a hearing on the First Motion with Defendant and counsel for the parties. At the hearing, Defendant argued that because the Government had not provided a sufficient report

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<sup>4</sup> Federal Rule of Criminal Procedure 16(a)(1)(F) states that when defense counsel requests from the Government any scientific reports or examinations in connection with the case, the government must permit a defendant to inspect and to copy or photograph the results or reports of any physical or mental examination and of any scientific test or experiment if:

- (1) the item is within the government's possession, custody, or control;
- (2) the attorney for the government knows—or through due diligence could know—that the item exists; and
- (3) the item is material to preparing the defense or the government intends to use the item in its case-in-chief at trial.

FED. R. CRIM. P. 16(a)(1)(F)(i)-(iii). Moreover, Rule 16(a)(1)(G) provides:

At the defendant's request, the government must give to the defendant a written summary of any testimony that the government intends to use under Rules 702, 703, or 705 of the Federal Rules of Evidence during its case-in-chief at trial . . . . The summary provided under this subparagraph must describe the witness's opinions, the bases and reasons for those opinions, and the witness's qualifications.

FED. R. CRIM. P. 16(a)(1)(G).

of McDonald's analysis, he could not mount a proper Daubert challenge to McDonald's proposed testimony. (Doc. No. 52 at 15.)

Thereafter, the Court agreed that the Initial and Second Reports were not detailed enough to comply with Rule 16(a)(1)(G) and ordered the Government to produce a supplemental report to satisfy the Rule. On September 15, 2021, the Government furnished Defendant and the Court with a more detailed report (the "Third Report") of McDonald's analysis. (Doc. No. 62 at 4.) Thus, the aspect of the First Motion challenging the Government's report under Rules 16(a)(1)(F) and 16(a)(1)(G) has been resolved. However, the object of the Motion, to exclude latent fingerprint evidence, remains at issue.

**b. Second Motion**

On October 12, 2021, Defendant filed a Second Motion in Limine to Exclude Expert Testimony Regarding Latent Fingerprint Identification (Doc. No. 61), based on the Third Report. In the Second Motion, Defendant argues: (1) that the ACE-V methodology employed by Detective McDonald in the Third Report is not reliable and is therefore inadmissible at trial under Daubert and Federal Rule of Evidence 702; and (2) even if ACE-V is considered reliable, Detective McDonald did not follow the proper ACE-V procedure and therefore his methods are unreliable. (See Doc. No. 61 at 5.) On October 20, 2021, the Government filed a Response in Opposition to the Second Motion. (Doc. No. 62.)

On March 29, 2022, the Court held a Daubert hearing regarding the fingerprint evidence. (Doc. No. 80, Daubert Hearing Transcript, March 29, 2022 ("Tr.") at 3.) During the hearing, the Government presented extensive testimony from its expert witness, Detective Sergeant David McDonald, the detective who matched the latent print to Defendant's known print. (Tr. at 20.) Detective McDonald testified about his experience and qualifications in the field of fingerprint

evidence, the ACE-V method, his application of the ACE-V method to make a positive identification in the present case, and various scientific reports and studies concerning ACE-V's usage around the United States. (See id. at 22–31; 33–41; 45–54; 78–82.) McDonald provided a thorough analysis of the ACE-V method and gave a detailed explanation of why he found a match using that method. (See id. at 46–54.) This is the testimony that Defendant seeks to prevent the Government from using at trial.

At the hearing, Defendant offered the expert testimony of Dr. Simon Cole.<sup>5</sup> (Id. at 102.) Dr. Cole testified that the ACE-V method was not capable of proper scientific validation. (Id. at 106–07.) According to Dr. Cole, ACE-V should be conducted “linearly” to reduce the risk of examiner bias. (Id. at 128–29.) “Linear” ACE-V requires the examiner to record his or her observations about the latent print before moving to the analysis of the known print and the other required steps. (Id.) While Dr. Cole admitted that there is no requirement that ACE-V be conducted linearly, he cited the Federal Bureau of Investigation (“FBI”)’s use of it as support. (Id. at 131–32.)

Defendant’s First and Second Motions are now fully briefed and ripe for disposition.

### **III. STANDARD OF REVIEW**

#### **A. The Daubert Standard on the Admissibility of Expert Witness Testimony**

Federal Rule of Evidence 702 governs the admissibility of expert testimony. See FED. R. EVID. 702. Rule 702 provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

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<sup>5</sup> The Government did not file a motion to exclude Dr. Cole’s testimony at trial. Therefore, the admissibility of Dr. Cole’s testimony as an expert witness is not at issue here.

- (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

Id.

In Daubert v. Merrell Dow Pharmaceuticals, Inc., the United States Supreme Court provided the analytical framework to determine the admissibility of expert testimony under Federal Rule of Evidence 702. 509 U.S. 579 (1993). Daubert held that Rule 702 imposes a “gatekeeping” obligation on the trial court to “ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.” Id. at 598. Also under Rule 702, the United States Court of Appeals for the Third Circuit has held that it “has three major requirements: (1) the proffered witness must be an expert, i.e., must be qualified; (2) the expert must testify about matters requiring scientific, technical or specialized knowledge; and (3) the expert’s testimony must assist the trier of fact.” Pineda v. Ford Motor Co., 520 F.3d 237, 244 (3d Cir. 2008). These requirements are also referred to as “qualification, reliability and fit.” Estate of Schneider v. Fried, 320 F.3d 396, 404 (3d Cir. 2003).

### **1. Qualification**

First, the Third Circuit has “interpreted Rule 702’s qualification requirement liberally.” Pineda, 520 F.3d at 244 (citing Schneider, 320 F.3d at 404; In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 741 (3d Cir. 1994)). Accordingly, a “broad range of knowledge, skills, and training qualify an expert.” Paoli, 35 F.3d at 741. Because both the “substantive” and “formal” qualifications of an expert are viewed liberally, the Third Circuit has “eschewed imposing overly



rigorous requirements of expertise and [has] been satisfied with more generalized qualifications.” Id. Thus, “it is an abuse of discretion to exclude testimony simply because the trial court does not deem the proposed expert to be the best qualified or because the proposed expert does not have specialization that the court considers most appropriate.” Pineda, 520 F.3d at 244 (quoting Holbrook v. Lykes Bros. S.S. Co., 80 F.3d 777, 782 (3d Cir. 1996)).

## 2. Reliability

Turning to the “reliability” requirement, the Third Circuit has interpreted reliability “to mean that an expert’s testimony is admissible so long as the process or technique the expert used in formulating the opinion is reliable.” Pineda, 520 F.3d at 244 (internal quotations omitted) (quoting Paoli, 35 F.3d at 742). Notably, “[t]he evidentiary requirement of reliability is lower than the merits standard of correctness.” Id. at 744. Admissibility turns “on the expert’s methods and reasoning; credibility decisions arise after admissibility has been determined.” Kannankeril v. Terminix Intern., Inc., 128 F.3d 802, 806 (3d Cir. 1997). In assessing the reliability of scientific expert testimony, a Court should consider the following:

- (1) whether the expert’s technique or theory can be or has been tested—that is, whether the expert’s theory can be challenged in some objective sense, or whether it is instead simply a subjective, conclusory approach that cannot reasonably be assessed for reliability;
- (2) whether the technique or theory has been subject to peer review and publication;
- (3) the known or potential rate of error of the technique or theory when applied;
- (4) the existence and maintenance of standards and controls; and
- (5) whether the technique or theory has been generally accepted in the scientific community.

FED. R. EVID. 702 advisory committee’s note.

Furthermore, the Daubert standard of admissibility does not apply only to “scientific” expert testimony. In Kumho Tire Co., Ltd. v. Carmichael, the Supreme Court of the United States held that “Daubert’s general holding . . . applies not only to testimony based on ‘scientific’

knowledge, but also to testimony based on ‘technical’ and ‘other specialized’ knowledge. 526 U.S. 137, 141 (1999). Thus, the test of reliability is “flexible, and Daubert’s list of specific factors neither necessarily nor exclusively applies to all experts or in every case.” Id. (quoting Daubert, 509 U.S. at 594–95).

### 3. Fit

To satisfy the “fit” requirement, “the expert’s testimony must be relevant for the purposes of the case and must assist the trier of fact.” Schneider, 320 F.3d at 404. For expert testimony to meet the Daubert “fit” requirement, it must “assist the trier of fact to understand the evidence or to determine a fact in issue.” FED. R. EVID. 702. “This condition goes primarily to relevance. Expert testimony which does not relate to any issue in the case is not relevant and, ergo, non-helpful.” Daubert, 509 U.S. at 591 (internal quotations omitted) (citing United States v. Downing, 753 F.2d 1224, 1242 (3d Cir. 1985)).

## IV. ANALYSIS

In his Motions, Defendant contends that the fingerprint evidence and related expert testimony from Delaware County CID Detective David McDonald should be excluded at trial. Notably, Defendant makes no argument concerning whether Detective McDonald’s proposed testimony meets the first and third prongs of the Third Circuit’s test for Rule 702, “qualification” and “fit.”<sup>6</sup> See Pineda v. Ford Motor Co., 520 F.3d 237, 244 (3d Cir. 2008).

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<sup>6</sup> In any event, Detective McDonald is qualified to testify as an expert in this case because he has extensive training and experience in the field of latent fingerprint analysis. Detective McDonald has been a police officer for thirty-nine years and the supervisor of the Delaware County CID’s Forensic Science Unit for twenty-six years. (See Tr. at 22.) He is also a faculty member at the Philadelphia College of Osteopathic Medicine, teaching courses in Criminal Forensics. (Id. at 27.) He has completed numerous training courses on fingerprinting techniques and associated forensic methods of analysis. (See id. at 25–26.) Moreover, McDonald estimates that he has performed over 100,000 fingerprint examinations and has made over 3,000 positive identifications. (See id. at 27.) He also has testified on this subject

Rather, Defendant focuses on the second prong, reliability, and argues that Detective McDonald's testimony is inadmissible for two reasons: (1) ACE-V is not a reliable method; and (2) even if ACE-V is reliable under Daubert, Detective McDonald did not properly apply it. (Doc. No. 61 at 5.) The Court will address these arguments seriatim.

**A. Expert testimony regarding fingerprint evidence using the ACE-V method is admissible under Rule 702 and Daubert.**

Defendant asserts that ACE-V is “of questionable reliability” and therefore does not pass muster under Daubert and Rule 702. (Doc. No. 61 at 10.) In support of this assertion, Defendant cites a 2009 report by the National Research Council, which concluded that fingerprint examiners using ACE-V “have yet to establish either the validity of their approach or the accuracy of their conclusions[.]” (Id. at 5) (quoting National Research Council, Strengthening Forensic Science in the United States: A Path Forward 1–14 (National Academies Press 2009)) [Hereinafter “NRC Report”].<sup>7</sup> To Defendant, the NRC Report is “virtually unassailable evidence that the reliability of latent fingerprint analysis is not generally accepted by the relevant scientific community” and

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forty-seven times in state and federal court. (See id. at 28.) Accordingly, McDonald has a “broad range of knowledge, skills, and training” and is therefore qualified as an expert witness at trial. Paoli, 35 F.3d at 741.

Regarding “fit,” the testimony of Detective McDonald will assist the trier of fact because it will help the jury determine the reliability and weight they should give to the fingerprint evidence the Government seeks to introduce. The “fit” prong of the Rule 702 test “in the case of fingerprint identification is not a significant factor, because identifying evidence is the archetypal relevant evidence in criminal cases.” United States v. Mitchell, 365 F.3d 215, 235 (3d Cir. 2004). Therefore, the proposed testimony meets this final prong under Rule 702.

<sup>7</sup> The NRC Report has frequently been referred to in this case as the National Academy of Sciences “NAS” Report. The National Research Council is part of the National Academy of Sciences. (Tr. at 105.)

that the ACE-V methodology fails the Daubert reliability factors of “testing, standards, error rates, and publication [and] peer review.” (Doc. No. 61 at 6.)

In its Response, the Government argues that ACE-V is, indeed, reliable. (See Doc. No. 62 at 6–7.) The Government bolsters this stance with citations to United States v. Mitchell, 365 F.3d 215 (3d Cir. 2004) and decisions of other Circuit Courts of Appeals, which have all held that scientific expert testimony using the ACE-V method is admissible under Daubert.<sup>8</sup> (Id.) Further, the Government remarks that, “in contrast to the heavy weight of precedent admitting such evidence, Wright cites no case reversing a conviction based upon a district court’s erroneous admission of fingerprint evidence” (see Doc. No. 62 at 8) and observes that “Wright concedes [in his Second Motion] that . . . ‘courts remain reluctant to exclude this long-accepted form of expert evidence in criminal case[s].’” (Id. (quoting Doc. No. 61 at 7).) Moreover, the Government characterizes the NRC Report as “advisory” and notes that it “was compiled by a committee of forensic scientists, statisticians, judges, and lawyers but no fingerprint examiners.” (Doc. No. 61 at 8 (quoting Gee v. United States, 54 A.3d 1249, 1266 n.24 (D.C. 2012)).)

After an overview of the ACE-V method, the Court will assess its reliability.

### **1. The ACE-V Method**

ACE-V is the method of fingerprint analysis that was used by Detective McDonald. ACE-V is an acronym that stands for the method’s four steps: (1) analysis, (2) comparison, (3) evaluation, and (4) verification. ACE-V is a form of “friction-ridge” analysis. (See Tr. at 33–35.)

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<sup>8</sup> In Mitchell, the Third Circuit affirmed the admission at trial of expert testimony regarding the ACE-V method. 365 F.3d at 359. However, the Third Circuit cautioned that “this case does not announce a categorical rule that latent fingerprint identification evidence is admissible in this Circuit, though we trust that the foregoing discussion provides strong guidance.” Id. at 246. Thus, the Court will perform its own analysis of the Daubert reliability factors infra, counseled by Mitchell and other authority.

The terms “friction-ridge” or “ridge” refer to the raised lines on the skin that make up a fingerprint. (See id.) The ridges provide friction so that persons can lift and hold objects without losing grip due to the force of gravity. (See id. at 34–35.) Fingerprints are left behind when oil from the friction-ridges touch a surface. See United States v. Mitchell, 365 F.3d 215, 221 (3d Cir. 2004).

In the first phase of ACE-V, analysis, the examiner observes friction-ridge structure at three increasing levels of detail, known as Levels One, Two, and Three. See id. Level One details include flow ridge patterns like arches, loops, and whirls, which are often visible to the naked eye. See Paul C. Giannelli, “Reference Guide on Forensic Identification Expertise,” REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 75 (3d ed. 2011) [Hereinafter “Forensic Identification”]; see also Mitchell, 365 F3d at 221. Level Two details, which are viewed at increased magnification, consist of “ridge characteristics” such as bifurcations, islands, and dots “formed by the ridges as they begin and end and join and divide.” Mitchell, 365 F.3d at 221. The points where ridges terminate or bifurcate are “Galton points.” (Id.) At an even higher magnification, the examiner then considers Level Three details, which are “microscopic variations in the ridges themselves.” Id. These details are microscopic attributes like “the width of a ridge, the shape of its edge, or the presence of a sweat pore near a particular ridge.” Forensic Identification 75.

During the second phase of ACE-V, comparison, the examiner compares the latent and known prints, looking for details that correspond between the two. NRC Report at 138. Points of comparison are noted, such as print shape, ridge flows, ridge counts, delta location and shape,<sup>9</sup> and the lengths and thickness of ridges. Id.

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<sup>9</sup> A delta is an area with a triangular pattern where “ridges radiate in three different directions.” (Tr. at 35.)

Next, in the third phase, an evaluation is performed. Id. During this phase, the examiner considers “the agreement of the friction ridge formations in the two prints and evaluates the sufficiency of the detail present to establish an identification.” Id. Assuming sufficient quality and quantity of detail in the latent and the known prints, the examiner will either make a positive identification (a match) or an exclusion (not a match). Id. If neither an identification nor exclusion can be made, the result is considered inconclusive. NRC Report at 138.

The final step of ACE-V is verification. Id. During this stage, an independent examiner repeats the entire analysis, comparison, and evaluation process. The results of this second process will either confirm or deny the first examiner’s findings. Mitchell, 365 F3d at 222.

## **2. Applying Daubert to the ACE-V Method**

Although the proposed testimony of Detective McDonald is technical in nature, it is subject to the same considerations as scientific expert testimony. United States v. Mitchell, 365 F.3d 215, 234 (3d Cir. 2004) (“Thus ‘technical knowledge,’ under which heading the discipline of latent fingerprint examination and identification seems to fall, is generally subject to the same considerations as ‘scientific’ expertise.”) As discussed supra, to determine whether scientific expert testimony is “reliable,” a court may consider several factors. Id. at 234–35 (citing FED. R. EVID. 702 advisory committee’s note). These factors include: (1) testability, (2) peer review, (3) error rate, (4) the existence of standards and controls, and (5) whether the technique has been generally accepted within the relevant scientific community. Id. Each factor will be assessed in turn.

### i. Testability

The first factor is testability. The expert's conclusions must be testable, or "falsifiable."<sup>10</sup> Daubert, 509 U.S. at 593. In United States v. Mitchell, 365 F.3d 215 (3d Cir. 2004), the Third Circuit held "the hypotheses that undergird the discipline of fingerprint identification" for ACE-V are testable. They are: (1) human friction ridge arrangements are unique and permanent, and (2) a positive identification can be made from fingerprints containing sufficient quantity and quality of detail. Id. at 235–38. For the first hypothesis, the Third Circuit noted "[t]he uniqueness proposition is testable because it would immediately be shown false upon the production of identical friction ridge arrangements taken from different fingers," and "[t]he permanence component of the first hypothesis is also easily testable—simply take fingerprints from an individual at one time and compare them to the prints taken at another time." Id. at 236. And for the second hypothesis, the Third Circuit noted:

First, the examiner can testify to how much detail (quantitative and qualitative) was necessary for the particular identification at issue; and second, any testing directed

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<sup>10</sup> Daubert does not define the term "falsifiable." See Daubert, 509 U.S. at 600 (Rehnquist, C.J., and Stevens, J., concurring in part and dissenting in part) ("I am at a loss to know what is meant when it is said that the scientific status of a theory depends on its 'falsifiability,' and I suspect [federal judges] will be, too.")

Therefore, the Court will rely on the definition of "falsifiable" that is provided by the Third Circuit in United States v. Mitchell, 365 F.3d 215 (3d Cir. 2004):

We first consider whether the premises on which fingerprint identification relies are testable—or, better yet, actually tested. "Testability" has also been described as "falsifiability." . . . A proposition is "falsifiable" if it is "capable of being proved false; defeasible." Webster's Third New International Dictionary 820 (unabridged ed.1966). Proving a statement false typically requires demonstrating a counterexample empirically—for instance, the hypothesis "all crows are black" is falsifiable (because an albino crow could be found tomorrow), but a clairvoyant's statement that he receives messages from dead relatives is not (because there is no way for the departed to deny this).

Id. at 235.

toward falsifying the premise that a greater or equal amount of detail is sufficient to make an identification will serve as an attempt (albeit an imperfect one) to falsify the adequacy of the identification standard actually used.

(Id. at 236–37.) Like the defendant in Mitchell, Defendant has not demonstrated that these hypotheses are not testable or “falsifiable,” because these hypotheses could be tested and proven false. Because ACE-V has testable hypotheses, this factor counsels in favor of admissibility.

## **ii. Peer Review**

The second factor is whether the method is subject to peer review. The last or “verification” step of ACE-V is a form of peer review because it requires that another individual conduct the first three steps of ACE-V on their own. See United States v. Mitchell, 365 F.3d 215, 238 (3d Cir. 2004) (“Sometimes the [peer] review takes the form of reproducing in full the results under review—that is, a second investigator repeats the entire course of experiments. Thus[,] the verification step of ACE–V seems usually to be akin to this heightened form of peer review.”). As McDonald testified at the hearing, his conclusions were independently verified by Detective Riordan before the positive identification could stand. (Tr. at 54.) Further, Detective Riordan was unaware of McDonald’s positive identification because he was given only the latent print and Defendant’s known prints to perform his analysis, comparison, and evaluation. (Id. at 75.) Nevertheless, Riordan similarly concluded that the latent print and the known print of Defendant’s left middle finger were a match. (Id. at 54.) Thus, the peer review factor weighs in favor of admissibility.

## **iii. Error Rate**

The third factor is the method’s error rate. The error rate of ACE-V was discussed at the Daubert hearing. (Tr. at 73–75.) For his part, Detective McDonald described an FBI black-box study in which 170 examiners viewed about 1,700 prints. (Id. at 73.) McDonald testified that only six erroneous positive identifications were made, which amounted to a 1.8 percent error rate. (Id.



at 74.) Additionally, McDonald stated that he has never made an erroneous positive identification to his knowledge. (*Id.* at 74.) During cross-examination of McDonald at the hearing, defense counsel pointed to a 2017 study conducted by the President’s Council of Advisors on Science and Technology (“PCAST study”), which discussed two error rates for ACE-V: “one in three hundred,” and “one in eighteen.” (*Id.* at 94.) However, it remains unclear what the circumstances of the PCAST study were or how it produced two different error rates. Dr. Cole did not discuss the PCAST study during his testimony, and when asked about ACE-V’s error rate, he responded: “I don’t remember, the test results of the right box study, but there were correct results and there were some errors.”<sup>11</sup> (*Id.* at 126.)

Based on the more extensive testimony of Detective McDonald at the hearing, the Court has reason to believe, like the Third Circuit, that “[t]he error rate [of ACE-V] has not been precisely quantified, but the various methods of estimating the error rate all suggest that it is very low.” *Mitchell*, 365 F.3d at 241. Thus, this factor weighs in favor of admissibility, and any remaining concerns regarding ACE-V’s error rate can be addressed at trial on cross-examination.

#### **iv. The Existence of Standards of Controls**

The fourth factor is the existence of standard of controls. “Closely related to the question of error rate is the maintenance of standards to guide the application of the method.” *Mitchell*, 365 F.3d at 241 (3d Cir. 2004). However, as the Third Circuit held, “[t]his [factor] is lacking [for fingerprint evidence] in some measure[.]” (*Id.*) The court noted:

Some standards do remain: There are procedural standards (such as ACE–V) and terminological standards (such as the naming conventions for Galton points). But these are insubstantial in comparison to the elaborate and exhaustively refined standards found in many scientific and technical disciplines. As such, we find that this factor does not favor admitting the evidence.

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<sup>11</sup> It is unknown whether Dr. Cole was referring to the FBI black box study, the PCAST study, or another study.

Id.

The Court adopts this analysis and notes Defendant’s reference to a report of the National Research Council, Strengthening Forensic Science in the United States: A Path Forward 1–14 (National Academies Press 2009) [Hereinafter “NRC Report”], which calls for heightened standards in the field of fingerprint evidence. The Report advises that “[n]o single protocol has been officially accepted by the profession” for the ACE-V method. NRC Report at 143. For example, there is some debate regarding whether the ACE-V method should be performed in a “cyclical” or “linear” manner. See Section IV(B)(2), infra. As defense witness Dr. Cole testified, while there are bodies that create standards and recommendations for fingerprint evidence, “there is not a universal, nationwide requirement that any of these standards be followed . . .” (Id. at 139.) Thus, based upon the record and the holding in Mitchell, this factor weighs against admissibility.

#### **v. General Acceptance**

The fifth factor, general acceptance within the relevant scientific community, weighs in the Government’s favor because the ACE-V method is generally accepted in the forensic identification and fingerprint communities. In Mitchell, the Third Circuit considered “whether fingerprint identification is generally accepted within the forensic identification community,” and concluded, “[t]he answer is yes[.]” Mitchell, 365 F.3d at 241. To support this, the court noted a decision from the Fourth Circuit, United States v. Crisp, 324 F.3d 261 (4th Cir. 2003), which “relied heavily on general acceptance to support the admission of fingerprint evidence.” Mitchell, 365 F.3d at 241 (3d Cir. 2004). In Crisp, the Fourth Circuit held:

While the principles underlying fingerprint identification have not attained the status of scientific law, they nonetheless bear the imprimatur of a strong general acceptance, not only in the expert community, but in the courts as well. See United States v. Havvard , 260 F.3d 597, 601 (7th Cir. 2001) (noting lower court’s

observation that fingerprint analysis has enjoyed “100 years of successful use in criminal trials”); United States v. Llera Plaza, 188 F. Supp. 2d 549, 563, 572–76 (describing longstanding consensus in expert community as to reliability of fingerprint identification process in holding admissible expert fingerprint identification evidence); see also United States v. Hernandez, 299 F.3d at 991 (upholding admissibility of fingerprint identification evidence one year ago); People v. Jennings, 96 N.E. 1077, 1083 (Ill. 1911) (upholding admissibility of fingerprint identification evidence ninety-two years ago). Put simply, Crisp has provided us no reason today to believe that this general acceptance of the principles underlying fingerprint identification has, for decades, been misplaced. Accordingly, the district court was well within its discretion in accepting at face value the consensus of the expert and judicial communities that the fingerprint identification technique is reliable.

Id. at 269.

In contrast, Defendant argues that ACE-V is not generally accepted, noting criticism of the method in the NRC Report. Yet Defendant has failed to show that these critiques eclipse the overwhelming acceptance of ACE-V in the forensic community. Moreover, Detective McDonald testified that, after the NRC Report, the “whole fingerprint community spoke about their suggestions and . . . ma[de] changes in order to make our science better in terms of reporting and uniformity,” and demonstrated that the NRC report and other criticisms of ACE-V have not affected its general acceptance in the field. (Tr. at 79.) Despite defense expert Dr. Cole’s dispraise of the ACE-V method at the hearing, he is a professor of forensics, not a fingerprint examiner, and has “never, actually, engaged in investigations” of fingerprint evidence. (Id. at 111–12.) Thus, his testimony does not override the formidable acceptance of the method in the forensic identification community. Therefore, this final factor counsels in favor of admissibility.

Taken together, the Daubert reliability principles weigh in favor of admitting the proposed fingerprint testimony based upon the ACE-V method. This conclusion corresponds with the Third Circuit’s holding in Mitchell, and the decisions of other Courts of Appeals. (Doc. No. 62 at 7); see also United States v. Herrera, 704 F.3d 480, 484–87 (7th Cir. 2013) (finding that “responsible”

fingerprint identification under ACE-V is admissible despite the method's subjectivity); United States v. Pena, 586 F.3d 105, 110–11 (1st Cir. 2009) (explaining that, given ACE-V's wide acceptance in federal courts, "it is difficult to discern any abuse of discretion when the district court decides to admit expert testimony that relies on the ACE-V method"); United States v. Baines, 573 F.3d 979, 991–92 (10th Cir. 2009) (finding the ACE-V method reliable under Daubert due to low error rate, extensive use by law enforcement for nearly a century, and "overwhelming acceptance" by experts in the field).

In fact, only one federal district court excluded expert testimony based on ACE-V under Daubert. However, this decision was later withdrawn. See United States v. Llera Plaza, 179 F. Supp. 2d 492, 494 (E.D. Pa. 2002), withdrawn from bound volume, opinion vacated and superseded on reconsideration, 188 F. Supp. 2d 549 (E.D. Pa. 2002) (holding FBI fingerprint expert could not give opinion testimony about latent fingerprint match). On a motion for reconsideration, the court noted its prior criticisms of the ACE-V method, but ultimately determined that "to postpone in-court utilization of this 'bedrock forensic identifier' . . . would be to make the best the enemy of the good." Llera Plaza, 188 F. Supp. 2d 549, 572 (E.D. Pa. 2002).

In sum, ACE-V is not without criticism. This criticism, however, does not preclude its admission at trial under Daubert. As noted by the Seventh Circuit, issues regarding the accuracy of fingerprint evidence generally go "to the weight and credibility of the evidence" and are "best left to the finder of fact[.]" United States v. George, 363 F.3d 666, 673 (7th Cir. 2004) (holding that, because fingerprint analysis is reliable, any issues regarding the match in question are best resolved by the fact finder). Thus, expert fingerprint testimony under ACE-V is sufficiently reliable to warrant its admission under Daubert, and any remaining concerns Defendant may have

can be addressed on cross-examination of McDonald or by presenting at trial an opposing expert witness.

**B. Detective McDonald’s application of ACE-V was correctly applied and reliable under Daubert.**

In the alternative, Defendant argues that, even if ACE-V is reliable under Daubert, Detective McDonald did not apply it correctly. (Doc. No. 61 at 6.) Defendant posits that McDonald’s application of ACE-V was unreliable for three reasons: (1) his use of “cyclical” ACE-V; (2) his “biased identification and execution of the ACE-V method;” and (3) “his attempt to submit an entirely new report three years after” his original positive identification. (Id. at 6–7.) After a summary of Detective McDonald’s ACE-V application, the Court will address each of Defendant’s arguments in turn.

**1. McDonald’s Application of ACE-V**

On direct examination, Detective McDonald thoroughly explained the ACE-V method that he used to make an identification, referencing a PowerPoint presentation marked as Government’s Exhibit 5. (See Tr. at 41–54.) After receiving Anthony Wright’s name as a suspect, McDonald located and printed out all of Defendant’s known print impressions. (Id.) Beginning his analysis, McDonald determined that two of the latent prints could be excluded because they did not exhibit the necessary ridge characteristics to make an identification.<sup>12</sup> (Id. at 46–47.) After scanning Lift 1 into a digital fingerprint file system and viewing LP-1.2 more closely, he noted that the lower right-hand section of LP-1.2 had a “much better quality,” thus he used it as his target area of analysis. (Id. at 47–48.) A target area is an area with sufficient “detail that [the examiner is] able

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<sup>12</sup> Fingerprint “lifts” are created by lifting a latent print and adhering it to a backer card. (Tr. at 45.) As explained supra, Lift 1 had two latent fingerprints on it, which McDonald denoted as LP-1.1 and LP-1.2. (Id. at 46.) Lift 2 had one latent fingerprint, denoted as LP-2.1. (Id.)

to return to quite easily and then, explore other areas of the print.” (Id. at 49.) In this case, McDonald described his target area as a “delta,” which is a triangular shape of ridges that point out in three directions. (Id. at 48.)

Notably, Detective McDonald performed the analysis and comparison phases of ACE-V simultaneously, using the “cyclical” method of ACE-V.<sup>13</sup> Looking at Level One details of the target area on LP-1.2, McDonald noted a left-slanting loop. (Tr. at 48.) Upon comparison, this excluded Defendant’s known right-hand fingerprints, which all had right-slanting loop patterns. (Id.) Comparing the known prints of Mr. Wright’s left hand to LP-1.2, McDonald then excluded Defendant’s left thumb print because, unlike LP-1.2, it had a whirl pattern. (Id. at 48–49.) McDonald then viewed the other four left-handed known prints and did not exclude any of them, because they all had left-slanting loops like LP-1.2. (Id. at 49.)

Looking at Level Two details under greater magnification, McDonald noticed that LP-1.2 had a bifurcation in the center, and the left side of the bifurcation “points down and [] has a very short ending ridge.” (Tr. at 49.) On the right side of this bifurcation, McDonald noted a much longer ridge than the one on the left side. (Id.) He also noted an ending ridge. (Id.) Then, McDonald analyzed Defendant’s known index fingerprint and excluded it based on these Level Two details. (Id. at 49–50.) Viewing LP-1.2 side by side with Defendant’s left middle fingerprint, however, McDonald noticed several similarities. (Id.) Both prints had the center bifurcation with a short ending ridge on the left and a long ending ridge on the right, and then an ending ridge of an intermediary length that matched between both prints. (Id.) Also, McDonald noted five intervening ridges, which are ridges with no particular characteristics. (Id.) Crucially, he also found the same five intervening ridges on the known print. (Id. at 51.) Thus, McDonald found

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<sup>13</sup> The “cyclical” and “linear” ACE-V methods will be discussed infra.

that “everything on [the right] side of the delta is in conformity” between the latent and the known. (Id. at 51–52.)

Then, McDonald conducted a Level Three detail analysis. (Id.) Viewing the first ridge below the delta on LP-1.2, he noted a bump both on top of it and below it. (Tr. at 54.) Below this, there is another ridge that thins as it flows from left to right, such that it gives a bulbous appearance. (Id.) This Level Three detail was also present on Defendant’s known print. (Id.)

Based on McDonald’s observations at the first and second steps of ACE-V, McDonald conducted the third stage, evaluation. At the third stage, McDonald concluded that he made a positive identification, or a match, between the latent print, LP-1.2, and Defendant’s left middle fingerprint. At the last stage of the ACE-V process, Detective James Riordan conducted his own “ACE” process and was given only the latent prints and Defendant’s known prints. (Id.) Riordan “came to the same conclusion and thus, [McDonald’s] print was verified[,] and the identification stood.” (Id.)

## **2. Detective McDonald’s application of ACE-V was proper.**

The Court has already determined, supra, that fingerprint evidence testimony based on ACE-V is admissible under Daubert and Rule 702. Because McDonald “describe[d] taking the specific actions described in the ACE-V methodology” in explaining his positive identification of the latent print and Defendant’s known print, his testimony will be admitted at trial because he has demonstrated compliance with the method. See United States v. McDaniels, Crim. No. 12-393-01, 2014 WL 2609693, at \*2 (E.D. Pa. June 11, 2014).

Defendant’s further arguments that McDonald failed to comply with ACE-V are without merit. First, Defendant argues that Detective McDonald performed ACE-V inaccurately because he used “cyclical” ACE-V, instead of “linear” ACE-V. “Cyclical” ACE-V occurs when an

examiner performs the analysis and comparison steps in tandem, looking at a characteristic on the latent print then checking whether that characteristic corresponds to the known print, and vice versa. (Tr. at 18, 89–90.) As indicated in McDonald’s testimony, he used “cyclical” ACE-V because he simultaneously performed his analysis and comparison of the prints. By contrast, “linear” ACE-V requires full performance of the analysis step first, with the examiner noting Level One, Two, and Three characteristics of the latent and known prints separately. In the “linear” ACE-V method, the examiner moves to comparison without “go[ing] back to the analysis phase.” (*Id.* at 129.) At the Daubert hearing, defense expert Dr. Cole testified that Detective McDonald erred by performing “cyclical” ACE-V because “linear” ACE-V is preferred and limits the possibility of a false positive identification. (Tr. at 93.)

Yet there is no standard for ACE-V that prescribes the “linear” method. This fact was confirmed by Dr. Cole, who conceded that “linear” ACE-V is a mere recommendation. (Tr. at 93, 139.) Further, no evidence has been presented by Defendant to convince the Court that “cyclical” ACE-V is unduly suggestive compared to the “linear” method.<sup>14</sup> Even so, McDonald testified that

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<sup>14</sup> At its core, Defendant’s challenge to “cyclical” ACE-V involves suggestiveness. Hence, Defendant advances the notion that a person in law enforcement would engage in tactics to suggest to himself what identification to make. Suggestiveness was addressed by the United States Supreme Court in Neil v. Biggers, 409 U.S. 188, 198 (1972). Though dealing with suggestive victim identifications, Neil’s holding is instructive: for suggestiveness, “it is the likelihood of misidentification which violates defendant’s right to due process, and it is this which is the basis of exclusion of evidence . . .” *Id.* at 278.

Based on the hearing testimony, it is unlikely that an examiner looking simultaneously at points of comparison using “cyclical” ACE-V would result in the misidentification of a fingerprint match, as opposed to using “linear” ACE-V. Thus, “cyclical” ACE-V is not unduly suggestive. Further, law enforcement officers like McDonald have extensive training and are aware of the issue of “cognitive bias in forensic science.” (Tr. at 152.) Moreover, it strains credulity to argue that an accurate comparison of two fingerprints requires a person to identify all of the characteristics of the first, then all of the characteristics of the second, before observing any similarities or dissimilarities. Despite Dr. Cole’s argument that a fingerprint examiner should identify all characteristics of each print first, this could result in considerable wasted time. For



he first noted seventeen different minutiae on the latent print before analyzing the known print, demonstrating that his analysis was, at least in part, “linear.” (Id. at 67–68.) Therefore, this argument has no merit.

Second, Defendant argues that McDonald’s identification was biased because he knew Defendant was a suspect in the robberies and only performed ACE-V with Defendant’s known prints, rather than first running the latent prints through the Automated Fingerprint Identification System (“AFIS”). (See Doc. No. 61 at 7, Tr. at 83.) At the hearing, McDonald testified that when he initially received the latent print lifts from Upper Darby Police Detective Christopher Karr (“Karr”) in late March of 2018, the case was sent “to the back of the line, [with] all other fingerprint submissions.” (Id. at 45.) Then, when Karr contacted him that June with news of a potential suspect, McDonald prioritized the case because he had not yet viewed the case file or conducted any analysis of the Sunoco prints. (Id. at 45–46.) McDonald testified that it is common practice for him to first perform ACE-V on latent prints after getting a suspect name, because AFIS will only provide a list of prints with similar characteristics and “doesn’t identify anything.” (Id. at 55.) Without a suspect and only a list of fingerprints, the examiner “must then go back and apply [] ACE-V” to each potential print. (Id.) This would have resulted in considerable wasted time. Therefore, Defendant’s argument that McDonald should have searched AFIS for similar prints before performing ACE-V on Defendant’s known print is without merit.

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example, it is always plausible that an examiner could notice a characteristic during the comparison phase that they did not notice during the analysis phase. (See Tr. at 39.) And contrary to Dr. Cole’s argument, it is unclear how a characteristic of one fingerprint would be incorrectly identified merely because it was identified on the other fingerprint first.

To the eye, the argument that “linear” ACE-V should be used is commendable. But no evidence has been presented that this method is required of examiners, or that “cyclical” ACE-V is unreliable. Thus, this argument is unavailing.

Moreover, like the argument against “cyclical” ACE-V, Defendant has not presented any evidence that comparing a known suspect’s prints first, before comparing the latent prints to other known prints, is unduly suggestive. There is little room for bias since the ACE-V method examines objective fingerprint minutiae with increasing magnification under a microscope. As demonstrated supra, McDonald excluded seven of Defendant’s known prints before making a positive identification between LP-1.2 and Defendant’s left middle fingerprint. These previous exclusions demonstrate that McDonald’s ACE-V analysis was not tarnished by bias, and that he correctly assessed the characteristics of the latent and known prints.

Third, Defendant argues, “in light of the [Third Report] produced by Det. McDonald—three years after his [Initial Report]—there are significant concerns about the legitimacy and reliability of his subsequent separate analysis.” (Doc. No. 61 at 11.) Yet Defendant has failed to provide support for this claim. Even if McDonald’s Third Report was based on an ACE-V conducted several years after the Initial Report, it is inconsequential because Defendant has not offered anything to suggest that his known prints, or the latent prints, changed over time. See Jackson v. Metzger, No. 16-0869, 2020 WL 2839214, at \*1 (D. Del. June 1, 2020). In Jackson, the court rejected an argument that defense counsel’s failure to cross-examine an expert on the reliability of inked fingerprints from 1973 constituted ineffective assistance of counsel because the defendant “offered nothing to suggest that an individual’s fingerprints change over time, or that the 1973 prints were otherwise unreliable.” Id. at \*14. Here, Defendant also “does not explain how a delay of even three years would impact the validity of an examination under the ACE[-]V methodology,” because “the fingerprints at issue are not perishable, and do not change over time.” (Doc. No. 62 at 9.) Thus, this argument also is meritless.

Because the evidence demonstrates that Detective McDonald complied with the ACE-V method, his testimony about the latent fingerprint evidence based on this method is admissible at trial.

#### **IV. CONCLUSION**

For the foregoing reasons, Defendant's Motions in Limine to Exclude Fingerprint Evidence and Expert Testimony Regarding Latent Fingerprint Identification (Doc. Nos. 52 and 61) will be denied. An appropriate Order follows.